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been found along the Susquehanna river at Athens, Pa., perhaps derived from the Vestal locality and carried there by the stream.

WILLARD N. CLUTE.

BINGHAMTON, N. Y.

*Sisymbrium altissimum* L. The Tumble Mustard has entered Michigan. The writer found over one hundred plants of this dreaded weed at Benton Harbor, Mich., June 13, 1896.

C. F. WHEELER.

*Reseda lutea*. We notice a reference in the June BULLETIN to *Reseda lutea* L., having been found in New Jersey.

In July of 1894 we collected specimens of this plant in meadows at East Windsor, Ct., on what could not have been ballast ground.

C. H. BISSELL.

*Reseda lutea* was collected by Miss Powers at Baldwins, Long Island, in 1895, and has been reported to me from Michigan, by Mr. S. H. Camp.

N. L. B.

*Erythea*. The editor of the "Journal of Botany," in referring (June issue, p. 280) to the part of Professor Greene's "Pittonia" recently distributed, makes a statement concerning "Erythea" which is about as accurate as his recently printed tabulation of the dates of publication of the BULLETIN during 1895. He says "Erythea, of which Prof. Greene was the moving spirit, seems to have come to an end, no number having appeared since December last." As the journal has been issued every month, this statement can only be understood by realizing that a restricted or insular notion as to the significance of "to appear" pervades the mind of the learned editor.

### Reviews.

*The Characeae of America*. By Dr. T. F. Allen. Part 2, fascicle III. April, 1896.

This contains descriptions and illustrations of ten species of *Nitella*, two of which are new, *N. Leibergi* and *N. transilis*. The other species figured and described are *N. mucronata*, *N. capitellata*, *N.*

*gracilis*, *N. tenuissima*, *N. pygmaea*, *N. minuta*, *N. intermedia* and *N. Asagraeana*. The text is full of interesting quotations and notes, several of which ought to encourage the collection of rare or undescribed species in many familiar Eastern localities, notably Green Pond, New Jersey, and Nantucket, Mass. We note in the case of *N. Leibergeri* the careful record made by the collector of the time and place of collection, but regret that this is not as exactly given in several other cases where it would be of great value. The illustrations are as handsomely lithographed, as Dr. Allen's always are, but we regret a certain indistinctness and irregularity of lettering which mars several of the plates. E. G. B.

*The Bamboo Garden.* By A. B. Freeman Mitford; illustrated by Alfred Parsons. Macmillan & Co., New York, 1896.

This is a work that will be welcomed by all plant lovers. It is a new departure in the way of ornamental gardening. Up to the last few years no one thought of introducing the bamboos into outdoor gardens; they were looked upon as belonging to the tropics, but the author has proved the possibility of making many varieties do duty as hardy plants.

The work is written for the more favored portion of the British Islands; there is no reason why it may not be just as useful in this country. On Staten Island several varieties have proved capable of resisting the cold of this latitude, and south of Washington many others would doubtless succeed if given a trial.

The author is an enthusiast and carries the reader along in a very pleasant way into believing as he does; he ridicules the attempts made of late years in copying a carpet, and other unnatural ways of planting for effect, advocates a return to the easy and graceful style of planting, and this he thinks can be helped by introducing the bamboo where available.

Altogether it is a very useful work, and will be much sought after as an authority on the subject, for he gives a list of more than fifty varieties of bamboos available for the temperate garden.

SAMUEL HENSHAW.

*Monographie der Gattung Euphrasia.* Dr. R. V. Wettstein.

Pp. 316. 7 cuts. 14 pl. 4 maps. Leipzig. 1896.

This exhaustive monograph touches on nearly every point of

interest connected with the genus *Euphrasia*. After an introduction and detailed discussions of the nomenclature, morphology and physiology, and a conspectus of the species, the author describes the species, giving much detail in regard to the time of flowering, geographic distribution and specimens examined, all followed by copious critical notes. Eighty-seven species and twenty-one hybrids are enumerated.

The excellent series of plates is divided between the anatomy, morphology and photographs of all the species, many taken from original specimens. The maps serve to show the geographic distribution of some of the species and larger groups of the genus.

Dr. Wettstein has divided *Euphrasia officinalis*, as generally understood by American botanists, into *E. Americana* Wett., *E. latifolia* Pursh, and *E. Oakesii* Wett., thus giving us three American species in place of one. *E. Americana* is said to extend from the region of the St. Lawrence River and the Great Lakes through Labrador; *E. latifolia* occurs on the coasts of Labrador and Greenland, and extends through sub-arctic and arctic Europe to Asia; while *E. Oakesii* is known from a single collection from the White Mountains, New Hampshire (not California as indicated by the author). We hope that Dr. Wettstein's interpretation of the American representation of the genus is more trustworthy than his geography.

J. K. S.

*Lehrbuch der Ökologischen Pflanzengeographie.* Eine Einführung in die Kenntniss der Pflanzenvereine. By Dr. Eugen Warming. German edition by Dr. Emil Knoblauch. 8vo., pp. 412. Berlin. 1896.

In the arrangement of the subject-matter this work is original. It is, however, very probable that Drude's and Grisebach's works on plant geography and distribution gave the impulse for producing it. It also seems evident that the author was strongly influenced by the numerous comparatively recent investigations on symbiosis, which no doubt suggested many of his ideas in regard to plant societies.

Warming introduces the subject with a consideration of the ecological factors concerned in plant distribution. These are divided into direct and indirect (Schoum). In the former are in-

cluded the contour of the earth's surface, elevation, latitude, longitude, the effects of living and dead soil-coverings (grass, leaves), the activities of plants and animals in the soil, etc., etc. In the latter are included the influence of light, moisture, air currents, chemical composition of the soil.

In section 2 the author takes up the discussion of "Zusammenleben" and vegetable societies. For the time being I am unable to give a good English equivalent for the term Zusammenleben. By it the author wishes to indicate the interdependent relationships of plants and animals, whether organically united (parasitism, saprophytism, symbiotism, etc.) or merely in close proximity (such as plants and plants, animals and plants). The author's conceptions of symbiosis (in the broader sense) are somewhat original. Parasitism is considered to be the most intimate association. The form of symbiosis met with in lichens is designated as "Helotism," in which the alga is the slave. The term mutualism is made to apply to the occurrence of endotrophic and ectotrophic mycorrhiza. Nothing original is added to the consideration of epiphytes and saprophytes. Lianas are included under Zusammenleben, since they were doubtless formed by their original dependence upon vegetable supports. Commensalism is used as equivalent to plant societies. According to the modifying factors the plant societies are divided into the following great groups: hydrophytes, xerophytes, halophytes and mesophytes. Each of these divisions is again subdivided. These subdivisions with their special modifying factors are quite fully discussed. On p. 125 it is stated that "pure water has a blue color," which seems to be an original idea.

The greater part of the work is devoted to the discussion of comparative vegetable morphology and physiology in connection with the modifying factors. It is a complete and well-arranged resumé of our knowledge on the subject. In conclusion there is given a brief discussion of plant struggles, weapons employed by plants in their struggles, origin of species, etc.

Considered in its entirety this is a most valuable recent contribution to the science of botany. It is a book which should be in the hands of every student. A. S.

*Flora of West Virginia.* By Charles Frederick Millspaugh and Lawrence William Nuttall. Field Columbian Museum, Publica-

tion 9. Botanical Series. Vol. 1: no. 2. Chicago. January, 1896.

The book before us is written in about the same style as the author's preliminary edition of 1892, but printed in much more handsome type. The introductory part is augmented by some paragraphs on the special features of the flora, the sylva, and a summary of the flora. The catalogue of species is enlarged by the intercalation of additions to the flora, new species and new varieties. A map of the State, and several illustrations are inserted, and a host index of the fungi and a list of local plant-names are appended. The authors are to be congratulated on their success in finding so many plants new to the region and new to science in such a circumscribed field. The number of plants of the present edition is recorded as 2,584 against the 1,645 of the preliminary edition. New species are described in the following genera: *Aspergillus*, *Botrytis*, *Verticillium*, *Fusicladium*, *Clasterosporium*, *Helminthosporium*, *Cercospora*, *Cylindrocolla*, *Phyllosticta*, *Sphacronacma*, *Dothiopella*, *Cytispora*, *Sphacropsis*, *Camarosporium*, *Septoria*, *Sacidium*, *Glocosporium*, *Valsa*, *Diaportha*, *Massaria*, *Trematosphaeria* and *Corticium*. A hybrid between *Betula lenta* and *B. lutea* is recorded.

We note several species whose occurrence in West Virginia we are inclined to doubt, for example *Dryopteris fragrans* and *D. Filix-mas*.

The nomenclature follows the most practical rules, but we notice a most unscientific case under *OEnothera* where that genus is divided, but only the nearest relatives of the true *OEnothera* are removed, while the more distinct members (*Kniciffia*) are left under *OEnothera*, because there is a later genus *Kniciffia*, which happens to be in use!

The present catalogue is a valuable addition to local botany, but we should like to see these local works that appear from time time, in a more useful form. Why not give generic and specific keys, and at least diagnostic descriptions? J. K. S.

*The Lichen-flora of Chicago and Vicinity.* By W. W. Calkins. Bulletin No. 1, Geological and Natural History Survey of the Chicago Academy of Sciences. April, 1896.

The author describes 125 species distributed among 28 gen-

era as occurring in the vicinity of Chicago. The diagnoses are given in fairly good English. We are also pleased to note that no "new species" were "discovered." There is appended a fairly complete list of the publications on lichenology issued in North America previous to April 15, 1896

The paper is prefaced by a discussion of the habits and distribution of the lichens of the territory. In the discussion of "What are Lichens?" the author very clearly shows that he is somewhat behind the times. He mentions the Schwendener theory and wonders whether the theory will ever be accepted. It has been fully accepted, and is now fast giving way to a better one (Reinke's).

There is also an introduction to the development and progress of Lichenology, which is, however, too brief to be of any practical value to the student of this special group. The same may be said of his mention of "the economic uses of lichens."

### Proceedings of the Club.

TUESDAY EVENING, MAY 12TH, 1896.

Mr. L. G. Fay in the chair and 12 persons present.

The Curator reported that Mr. Edward Berry has presented the Club with fifty fine specimens of plants from the country about Passaic, N. J., and other counties of the same State.

Mr. A. A. Tyler read his paper on "A Historical Review of the Study of Stipules." The author presented in a concise way the older opinions in regard to the morphology and modification of stipules. The paper was discussed by Dr. Britton and others. Subsequently Mr. Tyler made some further remarks on the origin and development of stipules.

The paper entitled "Appendages to the petioles of *Liriodendron*" by Mr. Arthur Hollick was read by title.

WEDNESDAY EVENING, MAY 27TH, 1896.

Dr. A. Schneider in the chair and 15 persons present.

Mr. John J. Schoonoven was elected an active member.